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- (54) Method of fabrication of an infrared radiation detector and more particularly an infrared sensitive bolometer
- (57) A method of fabricating an infrared sensitive bolometer, comprising the steps of:
- forming a sacrificial layer (11, 12 or 43) on a substrate (10 or 41);
- patterning said sacrificial layer (11, 12 or 43);
- depositing or growing a layer (13 or 42) consisting essentially of polycrystalline SiGe on said sacrificial layer;
- depositing an infrared absorber (49) on said polycrystalline SiGe layer;
- removing the sacrificial layer (11, 12 or 43).

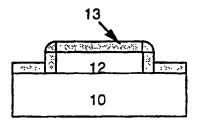


FIG. 1b



EUROPEAN SEARCH REPORT

Application Number EP 98 87 0058

Category	Citation of document with in of relevant pass	dication, where appropriate.	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	TSU-JAE KING ET AL: "DEPOSITION AND PROPERTIES OF LOW-PRESSURE CHEMICAL-VAPOR DEPOSITED POLYCRYSTALLINE SILICON-GERMANIUM FILMS" JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol. 141, no. 8, August 1994, pages 2235-2241, XP000471081 * abstract * * page 2235. column 2. line 5 - page 2236. column 2, line 30 *		21-24	G01J5/20 H01L31/18 H01L31/09
Y.D	VAPOR DEPOSITION" APPLIED PHYSICS LET vol. 61, no. 3, 20 315-317, XP00028767 * abstract; figures	ETEROSTRUCTURES OW PRESSURE CHEMICAL TERS, July 1992, pages 7 1,2 *	21-24	
A.D	column 1, line 1 - line 35 * NEWISSE M H ET AL: "The growth and roperties of semiconductor bolometers for infrared detection" ROWTH AND CHARACTERIZATION OF MATERIALS OR INFRARED DETECTORS II, SAN DIEGO, CA, SA, 13-14 JULY 1995, ol. 2554, pages 43-54, XP002039425 SSN 0277-786X, PROCEEDINGS OF THE SPIE - HE INTERNATIONAL SOCIETY FOR OPTICAL NGINEERING, 1995, SPIE-INT. SOC. OPT. NG, USA abstract; figures 1,2C,5,8 * page 50, line 15 - line 22 * paragraph 5.2 *		1-24	TECHNICAL FIELDS SEARCHED (Im.CI.6) GOIJ HOIL
	The present search report has	<u>-</u>		
	Place of search	Date of completion of the search		Examiner
	THE HAGUE	24 August 1998	Vis	sscher, E
X : part Y : part doc: A : tech O : non	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with anot ument of the same category inological background written disclosure irmediate document	L : document cited to	cument, but public e n the application or other reasons	ished on, or

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EUROPEAN SEARCH REPORT

Application Number EP 98 87 0058

	DOCUMENTS CONSIDI	ERED TO BE RELEVANT		
Category	Citation of document with in of relevant pass.	dication, where appropriate, ages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A,D	WO 93 13561 A (HONE * abstract; figure * page 7, line 9 - * claim 1 *	YWELL INC) 8 July 1993 5E * 1ine 25 *	1-20	
A,D	US 5 367 167 A (KEE November 1994 * abstract; figure * column 4, line 33		15-20	
A . D	GERWEN VAN P ET AL: BORON-DOPED POLYCRY 70%-GERMANIUM 30% F SENSORS AND ACTUATO vol. A53, no. 1/03, 325-328, XP00062031 * abstract * * paragraph 3 *	STALLINE SILICON OR THERMOPILES" RS A, May 1996, pages	1.9	
A	STEINER P ET AL: " APPLICATIONS OF POR THIN SOLID FILMS, vol. 255, no. 1/02, 52-58, XP000607762 * abstract; figures * paragraph 3.2 *	OUS SILICON" 15 January 1995, page	1,7	TECHNICAL FIELDS SEARCHED (Int.Ct.6)
		-/		
	The present search report has	been drawn up for all claims		
	Place of search	Date of completion of the search		Examiner
	THE HAGUE	24 August 1998	Vis	scher, E
X : par Y : par doc A : tec	ATEGORY OF CITED DOCUMENTS ticularly relevant if taken alone ticularly relevant if combined with anol ument of the same category thrological background	E : earlier patent after the filing ther D : document cit L : document cit	ed in the application ad for other reasons	lished on, or
A : tec		11 - 12/11/20/20/11/11		

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EUROPEAN SEARCH REPORT

Application Number EP 98 87 0058

		RED TO BE RELEVANT			
Category	Citation of document with in of relevant passa		Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)	
Category X,P	SEDKY S ET AL: "The structures for IR be polycrystalline sil' TRANDUCERS 97. 1997 CONFERENCE ON SOLID-ACTUATORS. DIGEST OF CAT. NO.97TH8267), INTERNATIONAL SOLID ACTUATORS CONFERENCE	ermally insulated plometers, made of icon germanium alloys" INTERNATIONAL -STATE SENSORS AND F TECHNICAL PAPERS PROCEEDINGS OF STATE SENSORS AND E (TRANSDUCERS '97), 5-19 JUN, pages 237-240 1997, New York, NY.	to claim	TECHNICAL FIELDS SEARCHED (Int.Cl.5)	
	The present search report has to Place of search THE HAGUE	peen drawn up for all claims Date of completion of the search 24 August 1998	Vis	Examiner Scher, E	
X : par Y : par doc A : teci O : nor	CATEGORY OF CITED DOCUMENTS tkularly relevant if taken alone ttoularly relevant if combined with another trouble to the same category thrological background number of the combined with another trouble to the combined to the combined through	T: theory or principl E: earlier patent do after the filing da ner D: document cited i L: document cited fi	eory or principle underlying the invention riler patent document, but published on, or		

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